

## Echo Cancellation System Method and Apparatus

### Abstract

An improved echo cancellation system (400) includes a double talk detector (406) configured for detecting a double talk condition by monitoring voice energy in a first frequency band (503). An adaptive filter (420) is configured for producing an echo signal based on a set of coefficients, and holds the set of coefficients constant when the double talk detector (406) detects the double talk condition. A microphone system (402) inputs audible signals (404) in a second frequency band (520) that is wider and overlaps the first frequency band (503). The echo signal is used to cancel echo in the input signal. A loud speaker (401) is configured for playing voice data in a third frequency band (501) essentially equal to a difference of the first and second frequency bands (502 and 503). The first and third frequency bands (503 and 501) essentially makeup the second frequency band (502).

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